#### MATERIAL SAFETY DATA SHEET

#### RED COPP 95

NPCA HMIS HAZARD FATING Heelin Fammability 1 Reactivity 1 Maximum Personal E

MANUFACIURER AMERICAN CHEMET CORPORATION P.O. BOX.1160 East Helena, MT 59635.	(406) 227-5302 ATTN: Dan Brimhall
_	EMERGENCY TELEPHONE
SECTION	EMER

APPROX, WT.	%96	2%	2%
CAS NUMBER	1317-39-1	1317-38-0	7440-50-8
Q	(Cu <sub>2</sub> O	90	3
CHEMICAL NAME	CUPROUS OXIDE	CUPRICOXIDE	METALLIC COPPER

HAZARDOUS INGREDIENTS TLV & PEL 86% Min 1 mm/m <sup>2</sup>	There is no ACGIH TLV or OSHA PEL for cuprous oxide or	cupric oxide. Exposure is governed by the 8 hour TWA established for finish divided copper in dists or mists. Cuprois oxide, cupric oxide and copper are not carcinogenic materials as listed by OSHA (29 CRR 1910) or AOSHI (Appendix A. Threshold Linit Values for Chemical Substances 1995-1996).
SECTION II	There is no ACGIF	cupric oxide. Exp established for fine oxide, cupric oxid as listed by OSHA Threshold Limit V.

PHYSICA y: H <sub>2</sub> O=1 e: by volume i et ale: ater.	Red Fine Powder, No Odor,	NA Negligible	. 1°	99	¥.	
TION III  By Point  Ific Gravity  Pressure  ent Volatile  oration Rat  oration Rat  ng Point  mg Point		Li	by volume;	H <sub>2</sub> 0=1	PHYSICAL DATA	
SEC Boilir Spec Vapo Evap Solut Melli Apre	Appearance and Odor.	Evaporation Rate: Solubility in Water: Melling Point:	Percent Volatile	Specific Gravity:	SECTION III Bailing Point	

SION HAZARD DATA NA COLOR	UEL: NA	
FIRE & EXPLOSIONIA NAT	NA COLON	
SECTION IV I Flash Point: Flammable Limits	Flash Point Flammable Limits	

Extinguishing Media: CO<sub>2</sub>, ABC extinguisher, or water. Special Fire Fighting Procedures: Separate from mass. Eliminate extigate.
Unusual Fire Fighting Procedures: Spontaneous combustion: may occur oxidizing product to CuO if exposed to moist air at temperatures above 100° C.

Signs, Symptoms, and Effects of Overexposure: Nausea, chills, diarrines. May cause respiratory infration; skin chilarion (odde pox); fever, eye fination with reutness, pain and corpinctivitis; preiexisting tung diseases may be aggiraviated by exposure. Could result in respiratory disease if over exposed.

Primary Routes of Enty. Inhalation and/or ingestion. Inhalation and infraind Procedure. Remove to firsts alf, Lay patient down. Cover will bainke if infraited, firthe eyes and skin with large volumes of fresh water for 15 minutes. Relet to

#### REACTIVITY DATA

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Stable X. Unstable.
Conditions and Materials to Avoid: Temperatures about 1009
C. While in presence of moist left. Mass build to jurider reactive conditions. Under certain conditions currous oxide may react. Violently with strong reactains such as acids, bases, and metals, such as but not imited to, Al and Mg.

Hazardous Decomposition Products: Cooper tumes will be released if cuprous cooper is meting point (2259 F).
Hazardous Polymenzation: Will not occur.

SECTIONAMI. SPILL OR LEAK PROCEDURES.
Steps to be listen in case material is released or spilled. Clean
up with vacuum or conventional tools. Avoid dusting.
Waste Disposal. Approved land fill if allowed by local, state
and federal authorities.

SECTION VIII. SPECIAL PROTECTION INFORMATION
SECTION VIII. SPECIAL PROTECTION INFORMATION
Respiratory Protection. Cardidgs byte particulate filler
Respiratory Protection Devices approved by NIOSH under 42.
CFR 84.

Ventilation: To keep below listed TLV in Section II, use general

dilution type ventilation.

Protective Gloves: Wear if skin contact is probable and skin is Eye Protection: Safety glasses or goggles, Other Protective Equipment: Long sleëve shirts if contact is probable and skin is sensitive.

### SECTION IX SPECIAL PRECAUTIONS Prezations to be taken in handing and storing. Keep lids tightly sealed. Store in cool, dry place. Other Prezations: Do not take intensity. Avoid prolonged contact with skin. Wash with so

This product contains copper compounds and is subject to the reporting requirements of Section 373 of Title III of the Superfund Ameridments and Reauthorization Act of 1986 and 40 CFR Part 372.

Date: December 23, 1998 (Rev. 8)

SECTION V HEALTH HAZARD DATA Threshold Limit Value: See Section II



## MATERIAL SAFETY DATA SHEET

ECTION2. Com Ingredient Cuprous Oxide Cupric Oxide Meallic Copper Somin - Short-term er 5 min - Short-term er 5 min - Short-term er	Manufacturer: Am On Pon Brace Brace Brace Brace Composition/Information of Composition/Information of Reference Sept. 215-270-7 2% 215-270-7 2% 215-269-1 Brace Br	Manufacturer: Aine Prop. P. One P. O. East D. S. C. East U.S. Energency Phone Nu Local Contact (If App Local Contact (If App Local Contact (If App 28, 215-26-1 2% 215-26-1 2% 211-159-6 Le limit (3-hour time ver limit (15-minute re limit (15-minute	Manufacturer: American Chemet Cope Smelter Road One Smelter Road Doe Smelter Road Does 1160 Does	Manufacturer: American Chemet Corporation One Smelter Road P.O. Box 1160 Earlfelena, MT 59635 U.S.A. Emergency Phone Number: Phone: +1 (406) 227 Local Contact (If Applicable): Application Society of the CAS No. Classification of the Cupric Oxide 2% 215-270-7 1317-39-1 Harmful Cupric Oxide 2% 215-269-1 1317-38-0 Metallic Copper 2% 231-159-6 7440-50-8 Metallic Copper 2% 231-159-6 7440-50-8 Metallic Copper 1% 231-159-6 7440-50-8 Metallic Copper 2% 215-269-1 1317-38-0 Metallic Copper 2% 231-159-6 7440-50-8 Metallic C	ation +1 (406) 227-5302 +1 (406) 227-8522 +1 (406) 227-8522  Classification F  Harmful F	802 872 R Phrises	ATTN: Dan Brimhall  Occupational Exposure Standards Copper as dusts & mist.  I mg/m <sup>3</sup> 8-hour.  2 mg/m <sup>3</sup> 15 min
Prin	Primary Routes of Entry:	s of Entr	S.				
Inha	Inhaled 🗵		Skin/Eye	0	Swallowed	×	Injected
Sign •	Jis. symptoms and effects of over Nausea, chills, diarrhea. May car redness, pain and conjunctivitis. Pre-existing lung disease may be	s and effe s, diarrhe and conj lung dises	Signs, symptoms and effects of overexposure:  Nausea, chills, diarrhea, May cause respirated to the conjunctivitis.  Pre-existing lung disease may be aggravate.	xposure; e respiratory in ggravated by e	riztion, skin irrit xposure. Could	ation (oxide po result in respira	Signs, symptoms and effects of overexposure:  • Nausea, chills, diardrea, May cause respiratory irritation, skin irritation (oxide pox); fever, eye irritation with redness, pain and conjunctivitis.  • Pre-existing lung disease may be aggravated by exposure. Could result in respiratory disease if overexposed on a

Cuprous oxide is stable in dry air, but can oxidize to cupric oxide in the presence of moist air at temperatures above 100°C.

Separate from mass. Eliminate Oxogen. Material is non-flammable. Use fire fighting measures appropriate to surrounding materials.

CO2, ABC extinguisher, or water

SECTION 5. Fire-Fighting Measures

MEDICAL NOTES:

Special Fire Fighting Procedures:

Extinguishing Media:

Special Exposure Hazards:

For skin exposure, remove contaminated clothing and wash with soap and water. If irritated, flush eyes and skin with large volumes of fresh water for 15 minutes. (\$26/28)

SKIN / EYE CONTACT:

INHALATION INGESTION:

Give 200-300 mL water to drink. DO NOT induce vomiting. Remove to fresh air. Lay patient down. Cover with blanket.

If any adverse symptoms persist seek immediate medical attention.

Contain spillages and clean up with vacuum or conventional tools and attempt to minimize dusting. Place in a suitable container for disposal in accordance with local and national waste regulations.

Only use in a well-ventilated area and prevent the creation of dusts. If concentrations exceed the occupational exposure limits, use suitable respiratory protection.

SECTION 7. Handling and Storage

Handling:

Storage:

Methods for Clean Up:

Do not allow to enter drains or watercourses, If the product enters drains or sewers, inmediately inform, the local water company. Where there is contamination of streams, rivers or lakes, contact local agency with responsibility for the environment.

Environmental Precautions:

Spilled material may produce dust hazard if not handled correctly. Wear appropriate personal protective equipment coveralls, gloves & eye protection.

SECTION 6. Accidental Release Measures

Personal Precautions:

Carnidge type particulate filter respirator or dust mask conforming to NIOSH.

Refer to Respiratory Protective Devices approved by NIOSH under 42 CFR 84 and the appropriate European standard. To keep below the OSHA exposure limits, use general dilution type ventilation. Occupational Exposure Controls. All personal protective equipment, including respiratory equipment, used to control exposure to hazardous substances must be selected to meet the requirements of national personal protective equipment regulations. Stoire in a cool, dry, well-ventilated place (53 & 59). Keep away from food, drink and animal feeding stuffs (513). Keep lids of container tightly sealed (57), Wear if skin contact is probable and skin is sensitive. SECTION 8. Exposure Controls / Personal Protection Respiratory Protection: Personal Protection: June 24, 2005 (Revision 15) Ventilation: Hand Protection:

Material Safety Data Sheet - Page-I

June 24, 2005 (Revision 15)

Material Safety Data Sheet - Page 2

June 24, 2005 (Revision 15)

Eye Protection:	Safery glasses or goggles.	
Skin Protection:	Long sleeve shirt(s) if contact is probable and skin is sensitive.	·
Environmental Protection:	Do not allow to enter drains or watercourses.	

Dispose of surplus and contaminated materials (fincluding sawdust) at an approved landfill or inaccordance with other national or regional provisions.

SECTION 14. Transportation Information

PRODUCT:

PACKAGING: Dispose of in accordance with procedures applying to the disposal of the product.

SECTION 13. Disposal Considerations

Skul is sellalitye.			
בינוב שיכיר שווי נושל או שוומבן וש שווים שווים שווים שוויו וש שלוויון אב	Do not allow to enter drains or watercourses.	roperties	Brown Fine Powder, No. Odour. NA 1235 °C. 6.0 NA 0% NA NA NA NA Negligible (< 0.1%)
	Environmental Protection:	SECTION 9. Physical and Chemical Properties	Appearance & Odour: Beiling Point Melting Point Specific Gravity (H <sub>2</sub> O = 1) Vapor Pressure: Percent Volatile (v/v) Vapour Density: Evaporation Rate: Solubility, in Water:

SECTION 10. Stability and Reactivity	
Stable X	Unstable
Conditions & Materials to Avoid:  • Temperatures above: 100°C while in the,  • Mass build up under reactive conditions.  • Under certain conditions Cu <sub>2</sub> O may react	ns & Materials to Avoid:  • Temperatures above: IOO°C while in the presence of moist air:  • Mass build up under reactive conditions.  • Under certain conditions Cu <sub>2</sub> O may react violently, with strong reactants such as acids and bases,
Hazardous Decomposition Products.	Copper fumes will be released if heated above its melting point (1083°C).
Hazardous Polymerization:	Will Not Occur
SECTION 11 Toxicological Information	

Hamiful if swallowed
Not classified
Not classified
Not classified as a skin initiant
Not classified as a skin initiant
Not classified as a reye initiant
Not classified as a dermal sensitizer

Acute Toxicity
Oral (Rat):
Oral (Rat):
Demal (Rabbit):
Inhalation (Rat):
Skin Erritation:
Eye Irritation:
Sensitization:

Very toxic to fish and toxic to other aquatic organisms. Prevent from entering drains, sewers, and surface water..

SECTION 12. Ecological Information

Domestic (DOT) Proper Shipping Name: Opper I Hazard Class; I Jabels: ORN-E Labels: ORN-E Labels: Non-Begulated) Proper Shipping Name: Sold Ibs (2,270 kg) International (IMO) Proper Shipping Name: Chemicals, N.O.S. (Non-Regulated) SECTION IS. Regulatory Information U.S. EPA EPCRA Section 313 Reportable Product Risk Phrases; R22 – Harmful if swallowed Safety Phrases: S22 – Do not breathe dust S22 – Avoid contact with eyes S32 – Wear suitable protective clothing S57 – Use appropriate container to avoid environmental contamination: SS7 – Use appropriate container to avoid environmental contamination:
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#### MATERIAL SAFETY DATA SHEET

# CHEMET TECHNICAL GRADE CUPROUS OXIDE

NPCA HMIS HAZARD RATING Health Flammability 1 Reactivity 1 Maximum Personal E:

Includes, but not limited to the following Trade Names: Red Copp 97N Red Premium, Purple Copp 97, Purple Copp 97N, LoLa Tim 97, Chiem, Copp HP II, Chiem Copp HP III, Chien Copp, Ultrafine and other technical grade Cupraisa Osides manifestured by American Chemet Corporation

PROX, WT. % 95% 3% 2% 2%	ισ:
CAS NUMBER: APPROX, WT. % 95% 1317-39-1 35% 1317-38-0 3% 7440-50-8 2%	SINGREDIENT TLV & PEL 1 mg/m³
0 0 0 0 0 0 0 0	HAZARDOU 85% Min
CHEMICAL NAME CUPROUS OXIDE CUPRIC OXIDE METALLIC COPPER	SECTION II

	There is no ACGIH TLV or OSHA PEL for cuprous oxide or cupric oxide. Exposure is governed by the 8 hour TNVA established for finely divided cooper in dusts or mists. Cuprous	oxide, cupinc oxide and copper are not carcinogenic materials as listed by OSHA (29 CFR 1910) or ACCIH (Appendix A, Threshold Limit Values for Chemical Substances 1995-1995).
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	SECTION III	PHYSIC	PHYSICAL DATA		
	Bolling Point			Α̈́Α	
	Specific Gravity: H <sub>2</sub> O=1	H <sub>2</sub> 0=1		6.0	
	Vapor Pressure:		,,,,,,,	A.	
	Percent Volatile by volume:	y volume	\	%0	
	Vapor Density:			A	
	Evaporation Rate:			AA	
	Solubility in Water.	Ľ.		Negligible	
	Melting Point:			2255° F	
	Appearance and Odor:	Odor:	Purple Fine	Purple Fine Powder, No Odor,	
					-
	SECTION IV	FIRE &	EXPLOSIO	FIRE & EXPLOSION HAZARD DATA	

DAIA	UEL: NA	
FIRE & EXPLUSION HAZARD DATA NA	LEL: NA	
Flash Point	Flammable Limits	

Extinguishing Media: CO<sub>2</sub>, ABC extinguisher, or water. Special Fire Fighting Procedures: Separate from mass. Eliminate oxygen.

Climinate oxygen.

may occur oxidizing product to CuO if exposed to moist air at temperatures above 100° C.

HAZARD DATA
HEALTH H
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Threshold Limit Vill-CHI in Account VAII.

Threshold Limit Vill-CHI in Account VAII.

Threshold Limit Vill-CHI in Account Vill-CHI in Chillie diafrines. National Limit All Chillie diafrines. National Limit All Chillie diafrines. May cause respiratory inflation; skin inflation(oxide poxy). (Aver. eye inflation with redriess, pain and conjunctivities, pressure, Coxidi result in respiratory diseases may be agravated by exposure. Coxidi result in respiratory diseases in over exposed on a chronic bestie.

Primary Routes of Entry. Inhabition and/or ingestion. Finangericy and First Aid Procedurer. Remoye to fresh air: Lay patient down. Cover-with blanket. If irritated, flush eyes and skin will ange volumes of fresh water for 15 minutes. Refer to physician.

200

Hazardous Decomposition Productis: Copper fumes will be released if cuprous oxide is heated above its melting point (2255°F).

Hazardous Polymerization; Will not occur.

## SECTION VII. SPILL OR LEAK PROCEDURES Steps to be taken in case material is released or spilled. Clean up with yeacum or conventional tools. Avoid dusting, with seculum or conventional tools. Avoid dusting, and federal authorities.

SECTION VIII SPECIAL PROTECTION INFORMATION PROPECTION PROPERTION CARBON TO A SEPTIMO PROPERTY SIDE OF USEN TO A SEPTIMONED BY NOISH. Refer to Respiratory Protective Devices approved by NIOSH under 42 CFR 84.

Ventilation: To keep below listed TLV in Section II, use general dilution type ventilation.

Protective Gloves: Wear if skin contact is probable and skin is Eye Protection: Safety glasses or goggles, Other Protective Equipment: Long sleeve shirts if contact is probable and skin is sensitive;

### SECTION IX SPECIAL PRECAUTIONS Precautions to be taken in handling and storing. Keep lids tightly sealed, 20ore in cool, try place, Other Precautions: Do not take internally. Avoid prolonged contact with skin. Wash with soap and water after contact.

This product contains copper compounds and is subject to the reporting requirements of Section 313 of Title III of the reporting requirements and Reauthorization Act of 1986 and 40 CFR Part 372.
U.S. Reportable Quantity, 5,000 lbs (2,270 Kg) SARA TITLE III SECTION X

Date: Revised 4/12/2006 (Rev 9)



SECTION 6. Accidental Release Measures

Personal Precautions:

Environmental Precautions:

Methods for Clean Up:

Spilled material may produce dust hazard if not handled correctly. Wear appropriate

#### MATERIAL SAFETY DATA SHEET

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NA
..pour Density.
NA
Evaporation Rate.
Solubility in Water. Negligible(<0.1%)
Percent Volutile (v/v) phrsonal protective equipment coveralls, gloves & eye protection.

Do not follow to exter definite or waterbourses. If the produce enters drains or severs, immediately inform the local watercompany. Where there is contamination of streams, rivers or lakes, contact local agency with responsibility for the evvironment. Comin repliliges and elderan up which accum or conventional tools and attempt to minimize dusting. Place in a suitable container for recycling or disposal in accordance with local and national waste regulations. To keep below the U.S.A. OSHA and EU exposure limits, use general dilution type Refer to Respiratory Protective Devices approved by NIOSH under 42 CFR 84 and the appropriate European standard. Copper fumes will be released if heated above its melting point (1235 °C). ... wear-ventuated area and prevent the creation of dusts. If concentrations exceed the occupational exposure limits, use suitable respiratory protection.

Store in a cool, dry, well-ventilated place, Keep away from food, drink and animal feeding stuffs. Keep fids of container tightly scaled. Cartridge type particulate filter respirator or dust-mask conforming to U.S.A. Occupational Exposure Controls. All personal protective equipment, including respiratory equipment, used to control exposure to hazardous substances must be selected to meet the Temperatures showe 100 °C while in the presence of moist air.
 Mass build up under reactive conditions.
 Under certain conditions Cu<sub>2</sub>O may react violently with strong reactants such as acids and bases. requirements of national personal protective equipment regulations. Not classified as an eye irritant Not classified as a dermal sensiti Not classified as a skin irritant Wear if skin contact it probable and skin is sensitive.

Safety glasses or goggles.

Long sleeve shirt(s) if contact is probable and skin is sensitive.

Do not allow to enter darins or watercourses. S61 - Avoid release to the environment. Refer to special instructions under Section 13. 561 - Avoid release to the environment. Refer to special instructions/safety data sheet. Skin Irritation: Eye Irritation: Sensitization: Appearance: Red, Brown, or Purple Fine Powder, Obtour.

Boiling Point: NA NA Specific Gravity (H<sub>2</sub>O=1) 6.0

Bulls Density. 1235°C
Specific Gravity (H<sub>2</sub>O=1) 6.0

Bulls Density. Will Not Occur SECTION 8. Exposure Controls / Personal Protection Prevent from entering drains, sewers, and surface water. SECTION 9. Physical and Chemical Properties. Oral (Rat): Harmful if swallowed Dermal (Rabbit): Not classified Inhalation (Rat): Not classified Toxic to fish and other aquatic organism Hazardous Decomposition Products: SECTION 7. Handling and Storage SECTION 10. Stability and Reactivity Conditions & Materials to Avoid: SECTION 11. Toxicological Infor Environmental Protection: Hazardous Polymerization: S22 - Do not breathe dust Respiratory Protection: Personal Protection: Ventilation: Hand Protection: Eye Protection: Skin Protection: Storage Class: Handling: Storage:

Material Safety Data Sheet - Page 1 of 3

April 28, 2006 (Revision 18)

April 28, 2006 (Revision 18)

Material Safety Data Sheet - Page 2 of 3

-ADRIND class: 9 (MT) Miscellaneous dangerous substances and articles.

- Danger code (Kemles): 90.
- ON Number: 3077

- Thurburd tabel: 9

- Description of goods: 3077 ENVIRONMENTALLY HAZADDOUS SUBSTANCE, SOLID, NO.S. -Label:
-Packaging stoup: -III.
-Marine pollutant:
-Proper shipping name: ENTRONMENTALIX HAZARDOUS SUBSTANCE, SOLID, N.O.S. • ICAONATA Cluss: 9
• UNID Number: 3077
• Label: 9
• Packaging group: III
• Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (dicopper oxide) SECTION 13. Disposal Considerations

PACKÁGING: Dispose of in accordance with procedures applying to the disposal of the product.

PRODUCT: Dispose of surplus and contaminated materials (including savidust) at an approved fandfill or in accordance with other national or regional provisions. ECTION 15. Regulatory Information
U.S. EPA EPCRA Section 313 Reporable Froduct
Hazard Symbols:
Xii: Hamful
Risk Phrases
R22 - Hamful if swallowed
Safety Phrases:
S2 - Keep out the reach of children
S22 - Do not breathe dust
S21 - Do not breathe dust
S22 - Do not breathe dust
S22 - On of breathe dust
S23 - On of breathe dust
S24 - On of breathe dust
S25 - On of breathe dust
S26 - Avioid release to the environment. Refer to special instructions/safety data sheet.
ECTION 16. Other Information
Keep out of reach of children. Read and follow all label instructions. Chemicals, N.O.S. (Non-Regulated) None 5,000 lbs (2,270 kg) (dicopper oxide) (dicapper axide) 06.11.99 Wasies not otherwise classifie - Air transport ICAO-TI and IATA-DGR: . Land transport ADR/RID (crass-barder) U.S. EPA Reportable Quantity. International (IMO) Proper Shipping Name. TION 14. Transportation Information
Domestic (U.S.A. DOT)
Proper Shipping Name:
Hazard Class: European Waste Catalogue; · Maritime transport IMDG: · IMDG Class:
· UN Number:

Material Safety Data Sheet - Page 3 of 3

April 28, 2006 (Revision 18)